In [ ]:
```
# Dictionary is a data structure in python.
# it store the value in the format of (k,v) key value
# we use {} to create a dictionary
# we can not store duplicate keys inside a dictionary
# we can store duplicate values
```

In [1]:
```
d={}
d
```

Out[1]:
```
{}
```

In [2]:
```
type(d)
```

Out[2]:
```
dict
```

In [3]:
```
d={1:"red",2:"green",3:"pink",4:"black"}
d
```

Out[3]:
```
{1: 'red', 2: 'green', 3: 'pink', 4: 'black'}
```

In [4]:
```
type(d)
```

Out[4]:
```
dict
```

In [5]:
```
d={1.1:"red",2.2:"green",3.3:"pink",4.4:"black"}
d
```

Out[5]:
```
{1.1: 'red', 2.2: 'green', 3.3: 'pink', 4.4: 'black'}
```

In [6]:
```
d={True:"red",False:"green",True:"pink",False:"black"}
d
```

Out[6]:
```
{True: 'pink', False: 'black'}
```

In [7]:
```
d={"r":"red","g":"green","p":"pink","b":"black"}
d
```

Out[7]:
```
{'r': 'red', 'g': 'green', 'p': 'pink', 'b': 'black'}
```

In [8]:
```
d={[1,2,3]:"red",[4,5,6]:"green","p":"pink","b":"black"}
d
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[8], line 1
----> 1 d={[1,2,3]:"red",[4,5,6]:"green","p":"pink","b":"black"}
      2 d

TypeError: unhashable type: 'list'
```

In [9]:
```
d={(1,2,3):"red",(4,5,6):"green","p":"pink","b":"black"}  #tuple index is fixed and ur
d
```

Out[9]:
```
{(1, 2, 3): 'red', (4, 5, 6): 'green', 'p': 'pink', 'b': 'black'}
```

In [11]:
```
d={1:"red",2:"green",3:"pink",3:"black"}
d
```

Out[11]:
```
{1: 'red', 2: 'green', 3: 'black'}
```

In [12]:
```
d={
    "id":1,
    "name":"b-T-shirt#0101",
    "price":34.56,
    "category":["A","B"],
    "store":{ "store_id":111,"location":"delhi"},
    "color":"red"
}
d
```

Out[12]:
```
{'id': 1,
 'name': 'b-T-shirt#0101',
 'price': 34.56,
 'category': ['A', 'B'],
 'store': {'store_id': 111, 'location': 'delhi'},
 'color': 'red'}
```

In [13]:
```
d={"r":"red","g":"green","p":"pink","b":"black"}
d
```

Out[13]:
```
{'r': 'red', 'g': 'green', 'p': 'pink', 'b': 'black'}
```

In [14]:
```
d["r"]
```

Out[14]:
```
'red'
```

In [15]:
```
d["r"]="redgreen"
d
```

Out[15]:
```
{'r': 'redgreen', 'g': 'green', 'p': 'pink', 'b': 'black'}
```

In [16]:
```
d={
    "id":1,
    "name":"b-T-shirt#0101",
    "price":34.56,
    "category":["A","B"],
    "store":{ "store_id":111,"location":"delhi"},
    "color":"red"
}
d
```

Out[16]:
```
{'id': 1,
 'name': 'b-T-shirt#0101',
 'price': 34.56,
 'category': ['A', 'B'],
 'store': {'store_id': 111, 'location': 'delhi'},
 'color': 'red'}
```

In [17]:
```
d["store"]
```

Out[17]:
```
{'store_id': 111, 'location': 'delhi'}
```

In [18]:
```
d["store"]["store_id"]
```

Out[18]:
```
111
```

In [20]:
```
d["category"][-1]
```

Out[20]:
```
'B'
```

In [21]:
```
d["category"].pop()
d
```

Out[21]:
```
{'id': 1,
 'name': 'b-T-shirt#0101',
 'price': 34.56,
 'category': ['A'],
 'store': {'store_id': 111, 'location': 'delhi'},
 'color': 'red'}
```

In [22]:
```
d={"r":"red","g":"green","p":"pink","b":"black","t":"red"}
d
```

Out[22]:
```
{'r': 'red', 'g': 'green', 'p': 'pink', 'b': 'black', 't': 'red'}
```

In [ ]:

In [23]:
```
d={"r":"red","g":"green","p":"pink","b":"black","t":"red"}
d
```

Out[23]:
```
{'r': 'red', 'g': 'green', 'p': 'pink', 'b': 'black', 't': 'red'}
```

In [24]:
```
d.keys()
```

Out[24]:
```
dict_keys(['r', 'g', 'p', 'b', 't'])
```

In [25]:
```
d.values()
```

Out[25]:
```
dict_values(['red', 'green', 'pink', 'black', 'red'])
```

In [26]:
```
d.items()
```

Out[26]:
```
dict_items([('r', 'red'), ('g', 'green'), ('p', 'pink'), ('b', 'black'), ('t', 're
d')])
```

In [ ]:

In [27]:
```
for data in ["a","b","c"]:
    print(data)
```

```
a
b
c
```

In [28]:
```
for k in d.keys():
    print(k)
```

```
r
g
p
b
t
```

In [29]:
```
for k in d.keys():
    print(k," ",d[k])
```

```
r   red
g   green
p   pink
b   black
t   red
```

In [30]:
```
for data in d.items():
    print(data)
```

```
('r', 'red')
('g', 'green')
('p', 'pink')
('b', 'black')
('t', 'red')
```

In [31]:
```
for k,v in d.items():
    print(k," ",v)
```

```
r   red
g   green
p   pink
b   black
t   red
```

In [ ]:

In [32]:
```
d={
    "id":1,
    "name":"b-T-shirt#0101",
    "price":34.56,
    "category":["A","B"],
    "store":{ "store_id":111,"location":"delhi"},
    "color":"red"
}
d
```

Out[32]:
```
{'id': 1,
 'name': 'b-T-shirt#0101',
 'price': 34.56,
 'category': ['A', 'B'],
 'store': {'store_id': 111, 'location': 'delhi'},
 'color': 'red'}
```

In [34]:
```
for k in d.keys():
    print(k," ============>",d[k])
```

```
id  ============> 1
name  ============> b-T-shirt#0101
price  ============> 34.56
category  ============> ['A', 'B']
store  ============> {'store_id': 111, 'location': 'delhi'}
color  ============> red
```

In [ ]:
```
```

In [35]:
```
li=["red","green","blue","yellow","pink","black"]
li
```

Out[35]:
```
['red', 'green', 'blue', 'yellow', 'pink', 'black']
```

In [36]:
```
name=input("please enter any color name")
c=0
for data in li:
    if data==name:
        print(name," found")
        c=c+1
        break
if c==0:
    print(name," not found")
```

```
pink  found
```

In [37]:
```
name=input("please enter any color name")
for data in li:
    if data==name:
        print(name," found")
        c=c+1
    else:
        print(name," not found")
```

```
black  not found
black  not found
black  not found
black  not found
black  not found
black  found
```

In [ ]:
```
```

In [38]:
```
li=[
        {"id":1,"name":"amit","age":22,"salary":220000},
        {"id":2,"name":"sumit","age":25,"salary":220000},
        {"id":3,"name":"akash","age":25,"salary":25555},
        {"id":4,"name":"vijay","age":27,"salary":28005},
        {"id":5,"name":"raman","age":22,"salary":10000}
]
li
```

Out[38]:
```
[{'id': 1, 'name': 'amit', 'age': 22, 'salary': 220000},
 {'id': 2, 'name': 'sumit', 'age': 25, 'salary': 220000},
 {'id': 3, 'name': 'akash', 'age': 25, 'salary': 25555},
 {'id': 4, 'name': 'vijay', 'age': 27, 'salary': 28005},
 {'id': 5, 'name': 'raman', 'age': 22, 'salary': 10000}]
```

In [39]:
```
li[0]
```

Out[39]:
```
{'id': 1, 'name': 'amit', 'age': 22, 'salary': 220000}
```

In [41]:
```
for data in li:
    print("----------------------")
    print(data)
```

```
----------------------
{'id': 1, 'name': 'amit', 'age': 22, 'salary': 220000}
----------------------
{'id': 2, 'name': 'sumit', 'age': 25, 'salary': 220000}
----------------------
{'id': 3, 'name': 'akash', 'age': 25, 'salary': 25555}
----------------------
{'id': 4, 'name': 'vijay', 'age': 27, 'salary': 28005}
----------------------
{'id': 5, 'name': 'raman', 'age': 22, 'salary': 10000}
```

In [ ]:

In [43]:
```
name=input("please enter any name")
c=0
for data in li:
    if data["name"]==name:
        print(data)
        c=c+1
if c==0:
    print(name," not found")
```

```
{'id': 2, 'name': 'sumit', 'age': 25, 'salary': 220000}
```

In [ ]:

In [46]:
```
idd=int(input("please enter id"))
name=input("please enter name")
age=int(input("please enter age"))
d={"id":idd,"name":name,"age":age}
d
```

Out[46]:
```
{'id': 1, 'name': 'amit', 'age': 22}
```

In [48]:
```
li=[]
```

In [50]:
```
idd=int(input("please enter id"))
name=input("please enter name")
age=int(input("please enter age"))
d={"id":idd,"name":name,"age":age}
li.append(d)
li
```

Out[50]:
```
[{'id': 1, 'name': 'amit', 'age': 22}, {'id': 2, 'name': 'sumit', 'age': 45}]
```

In [ ]: